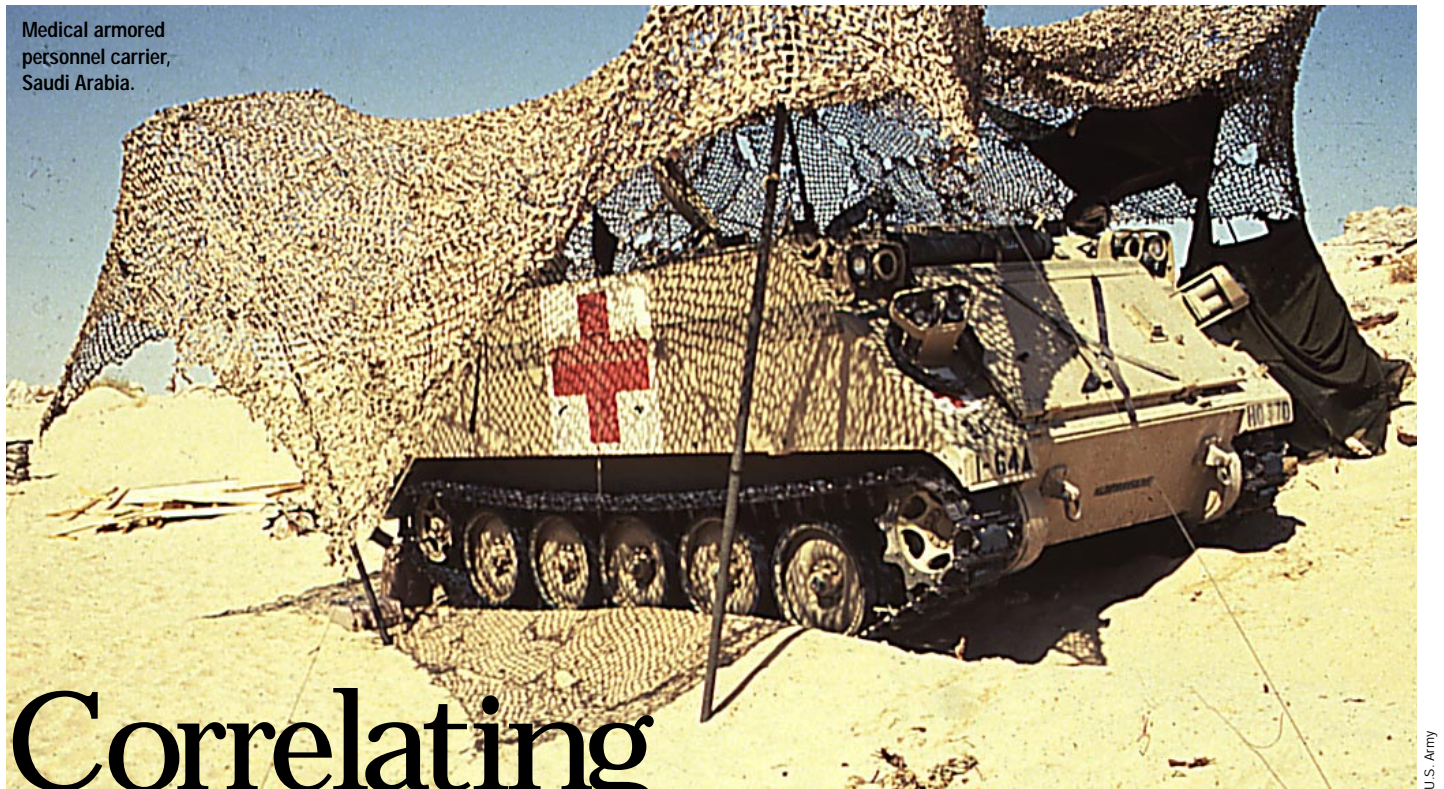


Medical armored
personnel carrier,
Saudi Arabia.



U.S. Army

Correlating Medical Forces Forward

By J. H. BINFORD PEAY III

EDITOR'S Note

CENTCOM confronts medical support challenges unlike those found in other regions. Deployed medical forces must be able to handle a range of military operations in the most remote and austere region of the world. This medical support is further challenged by downsizing. To get more out of finite resources, the command is melding medical services into a coherent joint system to ensure a clear division of labor and greater unity of effort. Moreover, it is improving connectivity among medical forces in theater and those within CONUS using innovative means such as telemedicine. CENTCOM experience with joint medical services is an exemplar for other kinds of support.

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The area of responsibility (AOR) assigned to U.S. Central Command (CENTCOM) encompasses 20 nations from the Horn of Africa to the Middle East, including the Red Sea, Persian Gulf, and western half of the Indian Ocean. The theater strategy rests on forward military presence, projection

of military power, combined exercises, security assistance, and readiness to fight. It demands a carefully cultivated relationship with our allies to deter conflict and maintain stability. The CENTCOM surgeon's office has a staff of nine active duty personnel and five Reservists from the Army, Navy, and Air Force, with a mission to plan and direct medical support for the command's operations.¹

With reductions in medical personnel and fewer assets forward based overseas, the ability of medical assets to deploy in a prompt, organized, and flexible manner will become more critical to CENTCOM capabilities. Readiness to support the mobilization, deployment, and engagement of U.S. forces must remain a high priority in the wake of terrorist actions, pre-hostilities, and humanitarian operations. Deployed medical forces must be prepared

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Medical civic action in Mogadishu, Somalia.



UH-1 being winched into C-5 Galaxy for Vigilant Warrior.



U.S. Air Force (Marilyn Barry)

U.S. Navy (Terry Mitchell)

for military operations that range from humanitarian missions to force protection to high-intensity war. Only by correlating medical forces forward can we provide optimal day-to-day support, supply a foundation for early support in contingency deployments, and accomplish the mission jointly.

Orchestrating land, sea, and air medical operations is demanding and requires joint medical expertise to integrate health service support (HSS). Indeed, real growth in military medicine

real growth in military medicine today is in the area of joint operations

today is in the area of joint operations. Through the process of correlating medical forces forward, the command surgeon's office has adopted jointness as a support platform. This article considers the provision of flexible, integrated health service support during peacetime, operational deployment, and execution phases and the results of that support on effective joint medical activities. Primary areas covered include medical planning; command, control, communications, and computers (C⁴); aeromedical evacuation;

medical logistics; host nation support; environmental concerns; preventive medicine; and humanitarian civic assistance programs within the AOR.

Concept of Operations

The HSS concept of operations aims to establish conditions to deploy and sustain a healthy and fit force. It requires a forward and responsive medical surveillance system to maintain health and combat effectiveness and to prevent casualties. HSS C⁴ is melded into a joint system that supports HSS collaborative planning, situational awareness, and decisionmaking.

When casualties occur the battlefield will be cleared. Patients will be stabilized forward with light surgical teams, then moved rearward, maintaining en route care and accountability. Hospital capability within the AOR, although austere, will provide stabilization and limited in-theater treatment to prepare patients who cannot be immediately returned to duty for evacuation rearward. Patients requiring treatment beyond the capabilities of HSS units will be evacuated to military hospitals in the communication zone or outside the AOR (including U.S. facilities in Europe). The CENTCOM staff, through component command staffs—Army Forces Central Command (ARCENT),

Naval Forces Central Command (NAVCENT), Marine Forces Central Command (MARCENT), Central Command Air Forces (CENTAF), and Special Operations Command Central (SOCCENT)—will manage and operate field hospitals, preventive medicine programs, aeromedical evacuations, automated medical information, and related activities to serve as a force multiplier for combatant commanders.

Joint Medical Planning

Since the AOR presents unique hardships, medical planning must take into consideration long lines of communication (LOCs) with limited lift, short warning time, lean combat and combat support forces, multiple missions from routine medical support to contingency operations, and health threats and environmental stressors.

Timely and effective planning and coordination are essential to the proper HSS mix within the theater. Subsequent to reports published in 1984, which indicated that no joint comprehensive plan for service assets existed, deliberate CENTCOM planning procedures are now accomplished in prescribed cycles that complement other DOD planning cycles and accord with the formal joint strategic planning system. HSS may be a service responsibility, but it must be carried out in keeping with joint doctrine.

Military Operations Value Model

Facility	Beds	Short/Tons	Lift Equivalents (C-17 / RORO / flat beds)	Acre(s) (< 2% grade)	Fuel (gallons/day)	Water (gallons/day)
Combat Support Hospital	296	933	21 / .176 / 138	30	12,000	26,000
Field Hospital	504	687	16 / .125 / 118	35	11,000	11,000
General Hospital	475	931	21 / .168 / 168	40	18,000	36,000
Fleet Hospital	500	4,054	88 / .5 / 836	28	11,000	24,000
Ship Hospital	1,000	NA	NA	NA	NA	NA
Contingency Hospital	500	453	NA	40	42,000	22,000
Air Transportable Hospital	50	127	5 / .018 / 22	1	0.7	6,000

Effective C⁴

Reductions in medical personnel and funding make effective C⁴ paramount. With sea LOCs of 12,000 nautical miles, air LOCs of nearly 8,000 miles, and a headquarters halfway around the world, a responsive C⁴ system is critical to providing seamless medical support. Only given such a system can the command surgeon tie all the resources together in a changing environment.

C⁴ is being emphasized as a result of the recent decision to increase force protection in the AOR. This determination has led commanders in Saudi Arabia to relocate troops from urban areas to a bare-base rural environment. This shift has enhanced communications capabilities of medical assets, thereby increasing the ability to integrate medical care forward in the region. Connectivity of systems, initially minimal, is constantly evolving. When completed, the process will be reliable and feature short- and long-range communications with satellite links and secure communications. The theater HSS information management system will be activated when this is available.

This system furnishes timely and accurate data on blood management, patient tracking and movement, and medical logistics. Careful integration into the global combat support system will offset increasing bandwidth requirements. This will involve infrastructure upgrades and combat support

applications integrated within a common operating environment and producing a shared data atmosphere to create combat support information interoperability.

An emerging telemedicine subsystem to be deployed in a hub/spoke mode is also currently being assessed. A hub sited at Prince Sultan air base will be the main operating post for medical support and will electronically connect outlying units (spokes) throughout the region. This system will link ARCENT, NAVCENT, and CENTAF medical assets and capabilities. A referral center in Europe or CONUS will be used for medical issues that exceed the capacity of the air base. As the communications network matures, smaller elements (for example, squadron medical elements) will

the Gulf War proved that the military echelons of care system works

be connected to larger ones (such as an air transportable hospital) and to a referral center if needed. As connectivity increases, capabilities such as digital radiology, consultation services, electronic mail, composite health care, records, and continuing education will be provided across the region. The system operates on an extremely wide electronic band making it difficult to use in immature, bare-base operations with a developing communications network. Initially, capabilities such as the international maritime satellite (INMARSAT) can furnish a "work

around" solution until theater communication systems are stood up.

Problems occur when data is transmitted in the clear. Medical operators must be cognizant of both operations and communications security. While medical information may not be classified, it can be an operations security indicator in the context of military operations. INMARSAT links can and should be encrypted, but as bandwidth increases encryption equipment also changes.

Aeromedical Evacuation

Timely patient evacuation plays an important role in the treatment sequence from front to rear. The Gulf War proved that the military echelons of care system works.² A careful review shows that the services can work together to make the system successful. Within the combat zone and echelons I through III, patient evacuation is usually the responsibility of component commands. Patients are moved by surface (land or water), rotary wing aircraft, or tactical aeromedical aircraft.

The Theater Patient Movement Requirement Center is responsible for coordinating combat zone patient evacuation. Within the CENTCOM AOR, patient regulating is accomplished at theater level. Tactical aeromedical evacuation from the combat zone (echelon III) to communication zone (echelon IV) is normally the

responsibility of the supporting Air Force component; in CENTCOM, this falls to CENTAF. Aircraft for patient evacuation are thus allocated at CENTAF level rather than by the office of the command surgeon. Aeromedical evacuation crews are controlled by Air Mobility Command while evacuation from the theater is the responsibility of U.S. Transportation Command, which establishes, operates, trains, and maintains common user aeromedical evacuation worldwide. Close coordination among the airlift commander, CENTAF surgeon, and CENTCOM command surgeon facilitates seamless patient evacuation.

Supplies and Equipment

Medical logistics support for CENTCOM has changed dramatically over the last few years. Maintenance and sustainment of prepositioned assets have become a unique challenge owing to more complex systems, a harsh environment, and extreme distances from supply sources. The Army is designated as single integrated medical logistics manager (SIMLM) for joint resupply. This calls for the supply of all class VIII medical support to the AOR at D+60 under contingency operations wartime support. Services provide class VIII support to their own units until SIMLM is initiated.

Higher echelon medical facilities require significant lift and sustainment. With this in mind, we preposition war reserve stocks in the AOR to reduce lift requirements and expedite force closure. CENTCOM prepositioned stocks consist of the following assets:

- *Army*—combat support hospital (296 beds), field hospital (500 beds), medical resupply sets (division level, echelons above corps, trauma, patient decontamination, and sick call), and medical equipment sets (treatment)
- *Navy*—fleet hospital (500 beds)
- *Air Force*—contingency hospital (250 beds), aeromedical staging facilities (100 beds), blood trans-shipment centers, and air transportable hospitals (50 beds).

Several joint initiatives undertaken for class VIII power projection enhance

synchronization and integration of medical logistics resources such as:

- *Flexible force structure*—tailoring medical facilities with modular designs to directly meet mission requirements
- *Integrated medical logistics systems*—a single logistics automated information system for all DOD medical treatment facilities
- *Shift from CONUS depots to prime vendor for resupply*—fewer pharmaceutical items stocked by the defense agency causing logistics to rely more on manufacturers and vendors
- *Medical express commercial air delivery to the supporting theater*—ensures more frequent deliveries, less consolidation of stocks, throughput delivery, and reduced ordering and shipping time
- *Total distribution initiatives*—automated systems now being developed to provide total asset and in-transit visibility.

CENTCOM, supported by the Armed Services Blood Program Office, collects, stores, and distributes blood products in required types and amounts ready for use within the AOR.

Host Nation Support

Medical support of forward deployed forces can present other challenges. The nature of force projection operations implies that few forces are available in theater during times of rel-

fighting strength can be conserved only by maintaining the health of soldiers, sailors, marines, and airmen

ative stability. Naturally, the size and capability of the support structure decreases proportionately with decreases in the overall force presence. This is true of all aspects of combat service support but especially health service. There are no fixed U.S. medical facilities within the CENTCOM region. The highest standard of medical care must be available wherever forces are deployed. Commanders, however, cannot accept a force package comprised predominantly of medical personnel.

Joint doctrine provides one solution to this dilemma by using host nation health services when they are available and meet U.S. standards. The advantages include avoiding duplication of effort, decreasing costs and the

American military footprint, and increasing responsiveness, which is the first principle of logistics support. At the same time, the United States must also maintain timely and complete patient accountability and visibility for the care and disposition of patients admitted to host nation facilities.

Host nation support takes planning. An aggressive and thorough medical intelligence effort is needed to identify facilities that can handle U.S. casualties and possess requisite standards of care. Finally, coordination must be made at all levels to ensure smooth integration of medical support (by both U.S. and host nation systems and personnel). Face-to-face interaction with allied health care practitioners engenders good rapport and is critical to ensuring that our forces receive the best care possible in host nation facilities.

Environmental Aspects

Each country and culture is unique. Language differences, environmental stressors, exotic diseases, dietary differences, and parasitic illnesses challenge servicemembers. The CENTCOM AOR includes countries where all these factors are present. The paramount health service function is preventive medicine. Personnel must deploy in good health and also be kept in that condition. The ill or injured are frequently lost to the command. Fighting strength can be conserved only by maintaining the health of soldiers, sailors, marines, and airmen.

Historically, the most frequent causes of casualties are disease and non-battle injuries. Recognizing health threats unique to a particular setting and prevention or early intervention are significant factors in maintaining the force. Many diseases endemic to the AOR are rarely seen by health care providers in the United States. Malaria, filariasis, and schistosomiasis are only some of the multitude of ailments that can affect an operation's outcome. Americans may feel apprehensive or insecure when initially encountering such health threats. Training and preparation can lessen the impact on the newly arrived servicemember.



Treating patient on board medevac flight.

DDO

Desert Shield/Desert Storm revealed the importance of a previously neglected dimension of preventive medicine. "Gulf War illness" has created an acute interest in monitoring environmental or occupational exposures to which troops are subjected. This concern has been generalized to all deployments in each theater but is of particular interest to CENTCOM, which has responded by fielding preventive medicine specialists within the AOR to sample air, water, soil, food, radiation, and other exposures and evaluate both the pre- and the post-deployment health status of personnel. The problem definition and assessment team for Vigilant Warrior and theater medical surveillance team for Desert Focus were successful in this aspect of preventive medicine.

Much of the AOR is desert and many regional cultures differ radically from our own. These factors combine with generational stressors to produce a demanding environment for deployed forces. Combat stress control thus becomes critical. CENTCOM views this function as integral to the overall preventive medicine effort.

Humanitarian Civic Assistance

Medical roles may transcend the functions of health service support. Humanitarian civic assistance missions are vital to the process of turning the CINC's vision of the AOR into reality.

They provide clinical health care to indigenous personnel in remote or medically underserved areas. The impact of such missions goes far beyond the health improvement of individuals actually treated. They allow the host government to demonstrate a commitment to improving life for its citizens. Moreover, they show that U.S. support to allies goes beyond just military help. They improve relationships with political leaders, armed forces, and local residents. Our medical personnel serve as ambassadors of American goodwill as well as clinical health care providers.

This goodwill role has broader implications. Military medical teams are often welcomed by nations who would not accept other forms of U.S. assistance. This was dramatically demonstrated in the opening of Eastern Europe after the fall of the Soviet Union, but the same principle applies in other regions. Indeed, the universality of medicine can transcend politics and even culture.

Our Armed Forces expect and deserve the best medical care regardless of where they are serving around the world. Medical personnel must be properly organized and deployed to meet the requirements of service doctrine and CENTCOM operational needs. Planning and procedures for

employing a joint medical force are a function of theater environment, trained medical assets, health status of deployed units, and national interests. The system must be fully supported and integrated by component commands. Those who plan or support such operations should expect joint medical services to pose unique demands; however, the results will greatly outweigh any inconvenience in learning to work jointly. An effective joint medical plan can be best sustained by frequent, closely coordinated training with a dedicated effort to capture and reinvest lessons learned.

Clearly, the ability to optimally care for servicemembers depends upon multiple factors. The challenge in this period of budget constraints, personnel reductions, and a rigorous review of service roles and missions requires understanding our capabilities to "correlate medical forces forward" within the CENTCOM area of responsibility in support of an immediate crisis. Only stringent, deliberate medical planning will prepare us to fight as a joint team to support near-term contingencies and the seamless transition to war. **JFQ**

NOTES

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² "Medicine in the Gulf War," *U.S. Medicine*, vol. 27, nos. 15 and 16 (1991), p. 58.